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NOTICE OF ALLOWANCE AND FEE(S) DUE

27384 7590 05/09/2008

NORRIS, MCLAUGHLIN & MARCUS, PA
875 THIRD AVENUE
18TH FLOOR
NEW YORK, NY 10022

EXAMINER

STARKS, WILBERT L

ART UNIT

PAPER NUMBER

2129

DATE MAILED: 05/09/2008

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/806,594	03/23/2004	Thomas Mrziglod	100717-616 / BAYER 10275	2453

TITLE OF INVENTION: METHOD FOR TRAINING NEURAL NETWORKS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1440	\$300	\$0	\$1740	08/11/2008

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

27384 7590 05/09/2008

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Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

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10/806,594	03/23/2004	Thomas Mrziglod	100717-616 / BAYER 10275	2453

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nonprovisional	NO	\$1440	\$300	\$0	\$1740	08/11/2008

EXAMINER	ART UNIT	CLASS-SUBCLASS
STARKS, WILBERT L	2129	706-020000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s); (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 554 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 554 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability

Application No.

10/806,594

Applicant(s)

MRZIGLOD ET AL.

Examiner

Art Unit

Wilbert L. Starks, Jr.

2129

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the filing of 01/07/2008.
2. ☒ The allowed claim(s) is/are 1-21.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- * Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date ____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date ____.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other ____.

/Wilbert L. Starks, Jr./
Primary Examiner, Art Unit 2129

DETAILED ACTION

Reasons For Allowance

Claims 1-21 are allowed.

The following is an Examiner's statement of reasons for allowance:

The claimed invention is statutory because it uses the measurement accuracies to perturb measured training data to improve the operation of an artificial neural network. Further, an artificial neural network is a model of a real world system: a biological neural network.

The cited prior art taken alone or in combination fails to teach the claimed invention of using the measurement accuracy of a sensor to determine the range in which training data is perturbed. Specifically, independent claims 1, 12, and 17 disclose that "each training datum has a measurement accuracy and wherein the training data are obtained by perturbing the data in an error range of the measurement accuracy." Note that Applicant's "... perturbing the data in an error range of the measurement accuracy" is interpreted from the Specification (page 3, lines 1-6, lines 15-20, and lines 21-26) to mean that the perturbations of the training data are within the measurement accuracy.

The closest prior art of Richardson (U.S. Patent Number 5,699,487 A; dated 16 DEC 1997; class 706; subclass 020) teaches:

The implementation of the backpropagation training 510 of the neural network 250 is depicted in Appendix A6-A7. In lines 38-39 of Appendix A6-A7, random noise is added to the input data signal 506, X.sub.--n, for use in training the neural network 250. Lines 45-47 of Appendix A6-A7 correspond to backpropagation algorithm Step 2 522 in FIG. 7A in which the output response O.sub.k 261 for each artificial neuron 260 is calculated. Lines 48-49 of Appendix A6-A7 correspond to backpropagation algorithm Step 3 523 in FIG. 7A, wherein the error is calculated. Lines 50-63 in Appendix A6-A7 correspond to backpropagation algorithm Step 4 524 in FIG. 7B, wherein the backpropagation actually occurs and the weights 257 are adjusted. See, Richardson, column 7, lines 29-42.

However, it fails to teach or suggest that "each training datum has a measurement accuracy and wherein the training data are obtained by perturbing the data in an error range of the measurement accuracy." Only to the extent that this feature is not found in the prior art of record is the present case found allowable over the art of record.

Claims 1-21 are considered allowable since when reading the claims in light of the specification, as per MPEP §2111.01, none of the references of record alone or in combination disclose or suggest the combination of limitations specified in independent claim 1, including: a "measurement accuracy" (as defined at page 2, paragraph [0010] and at page 3, paragraphs [0010] through [0013] and at page 5, paragraphs [0018] through [0022] and at page 6, paragraphs [0022] through [0025] and at page 7, paragraphs [0027] through [0028]), a "perturbation" (as defined at page 3, paragraphs

[0010] through [0011] and at page 5, paragraph [0022] and at page 6, paragraphs [0022] through [0025] and at page 7, paragraphs [0027] through [0028]), a "random variable" (as defined at page 3, paragraphs [0012] through [0013] and at page 6, paragraphs [0023] through [0026] and at page 7, paragraphs [0026] through [0027]).

Further, none of the references of record alone or in combination disclose or suggest the combination of limitations specified in independent claim 12, including: a "measurement accuracy" (as defined at page 2, paragraph [0010] and at page 3, paragraphs [0010] through [0013] and at page 5, paragraphs [0018] through [0022] and at page 6, paragraphs [0022] through [0025] and at page 7, paragraphs [0027] through [0028]), a "perturbation" (as defined at page 3, paragraphs [0010] through [0011] and at page 5, paragraph [0022] and at page 6, paragraphs [0022] through [0025] and at page 7, paragraphs [0027] through [0028]), a "random variable" (as defined at page 3, paragraphs [0012] through [0013] and at page 6, paragraphs [0023] through [0026] and at page 7, paragraphs [0026] through [0027]).

Further, none of the references of record alone or in combination disclose or suggest the combination of limitations specified in independent claim 17, including: a "measurement accuracy" (as defined at page 2, paragraph [0010] and at page 3, paragraphs [0010] through [0013] and at page 5, paragraphs [0018] through [0022] and at page 6, paragraphs [0022] through [0025] and at page 7, paragraphs [0027] through [0028]), a "perturbation" (as defined at page 3, paragraphs [0010] through [0011] and at page 5, paragraph [0022] and at page 6, paragraphs [0022] through [0025] and at page

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7, paragraphs [0027] through [0028]), an "evaluation means" (as defined at page 8, paragraphs [0035] through [0037]).

Conclusion

The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.

- A. Michalski (U.S. Patent Number 6,523,016 B1; dated 18 FEB 2003; class 706; subclass 012) discloses learnable non-Darwinian evolution.
- B. Neuneier et al. (U.S. Patent Number 6,282,529 B1; dated 28 AUG 2001; class 706; subclass 015) discloses a method and apparatus for computer-supported generation of at least one artificial training data vector for a neural network.
- C. Abraham-Fuchs et al. (U.S. Patent Number 5,417,211 A; dated 23 MAY 1995; class 600; subclass 409) discloses a method for the classification of field patterns generated by electrophysiological activities.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Wilbert L. Starks, Jr. whose telephone number is (571) 272-3691.

Application/Control Number: 10/806,594

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Alternatively, inquiries may be directed to the following:

S. P. E. David Vincent **(571) 272-3080**

Official (FAX) **(571) 273-8300**

/Wilbert L. Starks, Jr./

Primary Examiner, Art Unit 2129

WLS

12 APR 2008